REMARKS

In the Office Action, the Examiner noted that claims 1-8, 10-19 and 21-26 were pending in the application and the Examiner rejected all claims. In particular, the Examiner's previous prior art rejection based on Microsoft Excel 97 and Krawchuk was withdrawn in view of the Appeal Brief filed February 20, 2003. However, the Examiner has issued a new prior art rejection of the claims. By this Amendment, various claims have been amended. Thus, claims 1-8, 10-19 and 21-26 are pending in the application. The Examiner's rejections are traversed below.

The Rejection

In item 5 on pages 2-5 of the Office Action the Examiner has rejected all claims as unpatentable over the previously cited Microsoft Excel 97 Document in view of newly cited U.S. Patent 6,055,550 to Wallack.

The Present Claimed Invention

Referring, for example, to claim 1, as amended, the present claimed invention is directed to an interactive data analysis support apparatus for supporting the analysis of data. The apparatus includes random extraction means for automatically extracting a random sampling of data from the contents of a data warehouse. A cross tabulation means displays according to summing up conditions to set a range to be displayed a cross tabulation in which the random sampling of data extracted from the contents of the data warehouse of the random extraction means is cross summed up. A cell specifying means specifies at least one cell among a number of cells constituting a cross tabulation, and a graph displaying means displays the random sampling of data extracted from the contents of the data warehouse as a graph within the range of the cell specified by the cell specifying means.

In accordance with the present invention which includes a random extraction device for automatically extracting a random sampling of data from the contents of a data warehouse, a graph is displayed based on the extracted data. With this construction, only a predetermined number of records are extracted at random by the random extraction device, and a graph is displayed based on the extracted records. As a result, the number of records used for display of the graph is reduced, so that the time for reading out the records from the contents of the data warehouse is reduced. It therefore becomes possible to prepare the display at a high speed in the graph display device. Even if the system does not have a high speed processing

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capability, a sufficient operation speed can be assured and the data analysis processing and a lower cost can be achieved (page 4, line 29 to page 5, line 7).

The Prior Art

The Microsoft Excel 97 Reference ("Excel")

The Excel reference is directed to a spreadsheet program that incorporates several features which are believed to be advantageous over previous versions of Excel. The Excel program provides a graphical user interface for enhanced data-entry. A function, such as summing or cross-tabulating the selected data, may then be carried out for selected data which is extracted from a database. The selected cells may themselves include data extracted from the database. Alternatively, selected data, including data extracted from a database, may also be reordered by the user. Users may also create graphical representations of data extracted from the database from selected ranges of data. Excel fails to teach extracting data automatically at random from the database.

U.S. Patent 6,055,550 to Wallack

The Wallack patent is directed to optimizing the display of data for a computer generated form. In particular, selected groups of cells are resized to optimize viewing of data on a computer displayed form. To auto size a selected group of cells, a sampling of records that display data in the selected group of cells are identified. For each record selected, a display size is calculated based on the corresponding data. A display size is the size that is large enough to display without obstruction, data from a record in the corresponding cell. From all of the display sizes calculated, a single optimal size for each cell in the group of cells is determined. Based on the optimal size, the group of cells are resized and additional cells, which are visible on the computer generated form, are also resized or moved to reflect the resizing of the selected group of cells (column 3, lines 12-30).

Referring to Figures 1 and 2, an example is provided in which 1 column of the spread sheet of Figure 1 is selected for resizing. In step 220 of Figure 2, records are selected for sampling based on sampling information. The sampling information may indicate a statistical algorithm for random sampling in which case a random or pseudo random technique is utilized to select records for sampling (column 3, lines 53-67).

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The Present Claimed Invention Patentably Distinguishes Over the Prior Art

On page 3 of the Office Action the Examiner acknowledges that Excel 97 does not automatically extract a random sampling of data from a database. However, the Examiner takes the position that it would have been obvious to combine the features of Wallack and Excel 97 because "Wallack discloses the benefit of performing operations on a random sampling of data of a spreadsheet providing the advantage to automatically extracting the random sampling of data for carrying out operations on a spreadsheet which is faster than extracting data from a database manually by users for performing calculating in spreadsheet." (See pages 3 and 4 of the Office Action.)

In contrast to the prior art, in the present invention, random sampling of data from the contents of a data warehouse is performed in order to grasp a relative trend or characteristic of the data to be analyzed by using a data mining method. This is significantly different from the types of features disclosed in Wallack which are directed to optimizing the sizes of cells. Such optimization of sizing of cells cannot be accomplished if the sampling of data which occurs is directed to automatically extracting a random sampling of contents from a data warehouse." In particular, Wallack is not directed to conducting a random sampling of data from the contents of a data warehouse. Further, Wallack does not teach or suggest anything related to a data warehouse, and does not disclose or suggest the necessity for a random sampling of data from the contents of a data warehouse.

In view of the above, it is submitted that since there is no disclosure of a data mining method in Wallack, one of ordinary skill would not have been led to modify Excel 97 to include "automatically extracting a random sampling of data from the contents of a data warehouse". Therefore, it is submitted that the claims patentably distinguish over the prior art.

Referring specifically to claim 1, it is submitted that the prior art does not teach or suggest the claimed data analysis interactive data analysis support apparatus which includes:

> random extraction means for automatically extracting a random
> sampling of data from contents of a data warehouse;

> cross tabulation display means for displaying according to
> summing up conditions to set a range to be displayed a cross
> tabulation in which the random sampling of data extracted from
> the contents of the data warehouse by the random extraction
> means is cross summed up;

cell specifying means for specifying at least one cell among a
number of cells constituting said cross tabulation; and

graph display means for displaying the random sampling of data
extracted from the contents of the data warehouse as a graph
within the range of the cell specified by said cell specifying means.

Therefore, it is submitted that claim 1 patentably distinguishes over the prior art.

Referring to claim12, it is submitted that the prior art does not teach the claimed medium
which includes a program for executing:

a random extraction operation extracting a random sampling of
data automatically from contents of a data warehouse;

a cross tabulation display operation displaying according to
summing up conditions to set a range to be displayed a cross
tabulation in which the random sampling of data extracted from
the contents of the data warehouse by the random extraction
operation is cross-summed up;

a cell specifying operation specifying at least one cell among a
number of cells constituting said cross tabulation; and

a graph display operation displaying the random sampling of data
extracted from the contents of the data warehouse as a graph
within the range of the cell specified by said cell specifying
operation.

Therefore, it is submitted that claim 12 patentably distinguishes over the prior art.

Referring to claim 23, it is submitted that the prior art does not teach or suggest the
claimed interactive data analysis support apparatus which includes:

a random extraction device automatically extracting a random
sampling of data from contents of a data warehouse;

a cross tabulation display device displaying according to summing
up conditions to set a range to be displayed a cross tabulation in

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which the random sampling of data automatically extracted from the contents of the data warehouse is cross summed up;

a cell specifying device specifying at least one cell among a number of cells constituting said cross tabulation; and

a graph display device displaying the random sampling of data extracted from the contents of the data warehouse as a graph within the range of the cell specified by said cell specifying means.

Therefore, it is submitted that claim 23 patentably distinguishes over the prior art.

The remaining claims (2-11, 13-22 and 24-26) depend, directly or indirectly from one of claims 1, 12 and 23 and include all of the limitations of the claim from which they depend, plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that these claims also patentably distinguish over the prior art.

Summary

It is submitted that none of the references, either taken alone or in combination, teach the present claimed invention. Thus, claims 1-8, 10-19, 21-26 are in condition for allowance. Reconsideration of the claims an early notice of allowance are earnestly solicited.
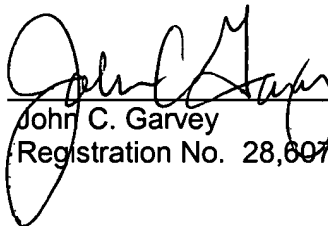
Respectfully submitted,

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